Kluwer Mediation Blog

The Ludic Fallacy

Bruce Greig (Bruce Greig, Civil and Commercial Mediator) · Wednesday, January 26th, 2022

I teach an online course for lawyers to help them become more comfortable working with numbers. We spend quite a lot of time on litigation forecasting: assigning probabilities to different outcomes, combining these probabilities correctly and coming up with an overall estimated value for the claim. This is useful to frame the parameters for any dispute, whether you are litigating, mediating or just negotiating. It is especially useful in a mediation, where you have a fixed amount of time to zero in on the area of possible agreement, and crunching these numbers helps each side see where agreement might be found.

In the following we will take the reader through an example calculation, and will then discuss the pitfalls of relying on pure mathematics when the "human factor" comes in.

I. Step 1: Risk Assessment by Percentage

Consider what happens if your mediation fails and the dispute ends up in court. Perhaps you have two different arguments to put forward and you estimate that you have a 60% chance of winning on argument one, and 50% chance of winning on argument two. You only need to convince the court on one or the other argument. What is your overall chance of winning?

The mathematically correct answer is 80%, which might seem surprising.

The easiest way to reach this answer is first to calculate your chances of not winning. Not winning on argument one is 40% (You have a 60% chance of winning, therefore a 40% chance of not winning.)

Not winning on argument two is 50% (because you estimated you have a 50:50 chance on this).

To calculate the chances of failing on both arguments, you multiply these two numbers together: 50% * 40% = 20%. Therefore, your chance of not winning is 20%. It follows that if you have a 20% chance of losing, you must have an 80% chance of winning.

II. Step 2: Assigning a Value to Winning or Losing

That is the first step. The second step is to assign a value to winning or losing. These outcomes are not usually equivalent. Losing might involve paying out a lot more money than you would receive if you won, or vice versa.

What if your client receives £5m if they win, but is on the hook for £10m if they lose? Is it still worth pursuing the claim?

Let's see. An 80% chance of winning £5m gives an expected value of 80% x £5m = £4m gain.

A 20% chance of losing £10m gives us an expected value of 20% * £10m = £2m loss.

Combine these together gives you a £4m gain minus a £2m loss = £2m expected value overall.

(If you are not comfortable running these numbers, I have built, along with my friend Robin Somerville, a free online tool to do the expected value calculations for you: www.DisputeCalculator.com.)

£2m here is your crucial number around which to anchor any negotiation. Any offers above £2m you should be minded to accept. Any offers below £2m, you should be minded to reject.

Not convinced? Consider running the same case 100 times. You would win £5m on 80 cases = £400m. You would lose £10m on 20 cases = £200m. Overall you would be up £400m – £200m = £200m, or £2m per case.

III. The Shortcomings of Arithmetic for Risk Assessment in Negotiations

Why do I say "minded to accept" and "minded to reject", though? Surely you should automatically accept anything above £2m, and reject anything below £2m?

At this point, we need to consider the other side's arithmetic. The other party's situation is unlikely to precisely mirror yours, so their expected value might be very different. It could be that their expected loss is, say, £3m, and if you figure this out you know they should be willing to offer closer to £3m than £2m to settle. If you accept £2m you are leaving £1m on the table.

We also need to consider what Nassim Nicholas Taleb (the author of Fooled By Randomness and The Black Swan) calls the Ludic Fallacy: using principles from simple games of chance to try and forecast real-world outcomes, and getting burned.

There are three layers to this fallacy.

The first rather obvious point can be summarised as "garbage in, garbage out". A commercial dispute is not like a casino where the probabilities are known in advance. You are working with rough estimates. Using fancy maths risks giving an illusion of accuracy which is not there.

Secondly, even if you have accurate estimates of how things will turn out if you go to court, your opponent might not behave as you expect.

Nassim Taleb uses a character called Fat Tony to illustrate this problem. If a coin has shown heads 99 times in a row, is it more likely to fall on tails next time?

No, says the banker in Taleb's tale: the probability is still 50:50 heads: tails, the coin has no memory of its previous outcomes.

Fat Tony says: "99 heads in a row? Gimme a break, the coin is obviously rigged, it'll be heads again next time."

Relying on a mathematical calculation during your negotiation assumes that your opponent is following a similar mathematical approach. But your opponent might have failed to run the numbers, used different values or run them incorrectly, so could pursue a course in the negotiation which turns out to be neither in their best interests, nor yours. Or they might simply see things very differently, like Fat Tony in Taleb's example.

Your opponent might also have other considerations which your calculation does not take into account. A financial lender might reject a reasonable settlement offer because they fear encouraging other borrowers to default. Or they would prefer to kick the can down the road rather than accept a write-down today.

Thirdly, there is a further nuance to the Ludic Fallacy, which is a little hard to pin down.

What does it really mean to say that you have a particular probability of winning? You either win or you don't win. How can we really say that the expected value of the claim in our earlier example is £2m? There is no trial outcome which leaves you with exactly £2m. You either win £5m or lose £10m. Why should you accept £2m at mediation?

Ludics will say (as I did in my explanation above) "Ah, but if you run this case many times over, on average you will win £2m, so you should accept anything over that to settle and you will be, overall, better off than if you took every case to trial."

But your client can't run the case many times over.

And, actually, can anyone? A personal injury lawyer might have many similar cases and be able to average out their results. But they are still dealing with one case at a time, and each case is not quite like the others.

However much data you have about similar cases you don't know everything about your case. If you did, you would be able to predict it with complete certainty.

Let us say you estimated you had a 80 % chance of success at court, and so abandon settlement discussions and take your chances in court. You lose. What does it mean to say that you had a 80 % chance of success? Surely you actually had a 0% chance of success with that particular case and with that particular judge, but you just did not know it?

IV. Concluding Remarks

Here we are edging into a philosophical discussion of determinism. Maybe you should have won. Maybe you would have won, but for x or y. Maybe you would have lost, whatever happened. Does this mean that we should not bother to run the numbers? No, it does not.

You can't just throw your hands up and say "I give up – maybe you will win, maybe you will lose, I don't know." Doing a probabilistic calculation has to be somewhat useful. It is just as you dig deeper, things can become murkier, not clearer.

Doing the arithmetic is a vital starting point, to set the parameters and see where the zone of possible agreement might be. In a mediation in particular, where the objective is to find an agreement, it is important that both parties have a reasonable estimate of the expected value for each side.

But it is just a starting point, it should not drive the whole negotiation. The numbers should be in the background, in the same way that the threat of a trial is in the background, to keep the two sides within a reasonable zone, and somewhere in that zone there should be a point where they can agree to settle.

Further reading:

Nicholas Nassim Taleb – Fooled by Randomness
My free online tool to run expected value calculations: www.DisputeCalculator.com
My Maths for Smart Lawyers course: Details here at MBL Seminars
Connect with me on LinkedIn: www.linkedin.com/in/brucegreig

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This entry was posted on Wednesday, January 26th, 2022 at 10:50 am and is filed under ADR, Commercial Mediation, Deal Mediation, Decision making, Dispute Resolution, Intuition, Mediation

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